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CURRENT LITERATURE

BOOK REVIEWS

The Chicago textbook[1]

Of the three parts composing the Chicago *Textbook of Botany for Colleges and Universities*, "Morphology" by COULTER and "Physiology" by BARNES appeared nearly two years ago, and were noticed in this journal[2], while "Ecology" by COWLES, concluding the work, appeared in January and is now before us.

However eagerly parts I and II were anticipated by all concerned with botanical education, an even warmer welcome has been ready for part III, because, while the former had predecessors, the latter has not. What, then, are the characteristics of this first compendious textbook of ecology? In the first place, as most botanists will notice with pleased surprise, the book is primarily a description and analysis of the ecological factors, treated in connection with the principal organs—roots, stems, leaves, etc.—with which they are most closely associated; while the synthetic phases of the subject—those discussions of associations, formations, societies, etc., which have to come to stand in the minds of most people as synonymous with the very word ecology—are relegated to a single brief chapter. This is wise, because it is becoming quite plain that the relative barrenness of synthetic ecology is a natural consequence of the newness, crudeness, and deficiencies of our knowledge of analytical ecology. In the second place, the book is a remarkably clear and forceful presentation of its subject, the exposition, indeed, being in no wise inferior to the high standard of the preceding parts, while occasional important passages (e.g., the description of photosynthesis on pp. 525–526) are notably effective. Furthermore, a striking quality of the book is completeness, but it is a question whether in this feature a virtue has not been carried so far as to constitute a fault; for so detailed is the treatment, and so obvious is the intention to leave no important phase of the subject untouched, that the work is carried out of the field of the textbook, in which rigid selection and proportion are essential, into that of the handbook, where completeness is of course a very first requisite. This view receives incidental confirmation from the length of this part in comparison with the others, for it comprises no less than 479 pages, as contrasted with the 296 of part I, which covered all of morphology, including the whole range of the groups, and the 189 of part II, which comprised all of physiology. So gross a relative disproportion between bulk and intrinsic content value, while unjustifiable from the textbook point of view and prohibitive of the acquisition by a student of any such clear-cut and well proportioned view of its subject as parts I and II afford, is perhaps allowable on the ground of the genuine need for a first formulation of the material. In the third place, the book displays the same wealth of well selected illustration, and the same tasteful, even beautiful typography of the earlier parts. And finally, so far as the accuracy of the fact-matter is concerned, it will require a vastly larger knowledge of the material than the present reviewer possesses to detect any considerable error either of statement or omission, while such flaws as appear are too insignificant for mention. It is, in brief, a distinctive, authoritative, foundational work, destined to take an immediate place as an indispenable reference work for all concerned with the life-phenomena of plants.

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[1] COULTER, BARNES, and COWLES, A textbook of botany. Vol. II. Ecology. 8vo, pp. 480. *figs. 535*. New York: American Book Co., 1912. $2.00.

[2] BOT. GAZ. **51**:67. 1911.

A remarkable feature of the book consists in its philosophy. This may be summarized as a systematic antagonism to everything Darwinian. Under the assumption that the language commonly in use to describe the relations of plants to their surroundings, including such words as adaptation, adjustment, storage, etc. (p. 487), mislead learners into a belief that plants act with an even more than human forethoughtfulness (p. 950), the author attempts to avoid all such expressions, visiting with especial condemnation anything of teleological implication. But only a bogey of his own creating is at the bottom of the author's trouble. No students, in the reviewer's experience, if only half-decently instructed, ever gather any such notions. Besides, Darwin himself, as to whose views, of course, there is difference of opinion, but as to whose rationalistic habit of mind there is none, habitually uses teleological language throughout his works without ever having been misunderstood in this respect. However, Professor COWLES is apparently not an evolutionist, because, after expressly and repeatedly combating the idea of a historical or causative adaptation, which he makes either an accident or a psychological illusion, he replaces it by the idea of "mechanical causation" (p. 487), that is, passive reaction to mechanical, physical, or chemical influences. Now this idea carries the inevitable corollary that such responses must be always the same in the same part under the same conditions, and that therefore they cannot be modified into anything else, any more than chemical compounds can change the nature of their reactions to outside influences; and without such possibility of change, no evolution, but only a kind of spontaneous creation, is possible. In his opposition to everything savoring of adaptation, the author is led at times even to a distorted representation of the views he opposes. Thus, no authors, that the reviewer can recall, and certainly none of authoritative rank, have ever maintained any such naïve conception of adaptive response as is attributed to some of them, by implication, at the top of p. 950. Indeed, the author's view of everything relating to adaptation is distinctly myopic, and the treatment of those subjects tends to the dogmatic, not in language but in spirit. This very book seems to the reviewer to show that whatever the deficiencies of the adaptation-selection hypothesis, it still has to its credit a notable balance of reasonableness in comparison with the proposed substitute.—W. F. GANONG.

An elementary text

A new elementary text by BERGEN and CALDWELL[3] attempts to meet the growing demand for practical botany, which means the economic aspects of plants. This demand arises not only from the interest of pupils in the "bread and butter" side of science, but also from what is thought to be the greatest need of that very large proportion of high-school students whose formal education ends with the high school. There is no question that advantage should be taken of interest and need, and the only question is as to whether they are satisfied by a proposed course of study. Moreover, this question can be answered only by experience. Many a public demand voices a real need, and then the change comes to stay; and many another public demand voices an imaginary need, and then the change soon passes into the limbo of "fads."

The book before us has been handicapped in setting the task of meeting a possible public need and at the same time meeting the artificial need of entrance requirements imposed by colleges. As a result, the unifying motive is lacking and the book becomes a mosaic rather than a definite pattern. The field of previous texts is covered, and to this is added the economic phases of plants, which compels a brevity of treatment in many cases that results in obscurity. In spite of the divergent purposes and space limitations, the book is a marked advance in the direction intended.

Some of the noteworthy features are: an introductory general survey of plants in relation to man, and "the plant as a working unit" (pp. 23); elementary forestry (pp. 21); plant breeding (pp. 21); plant industries (pp. 30); weeds (pp. 11); leading families of flowering plants and their uses (pp. 35); and especial emphasis upon plant diseases and methods of control. In a practical botany of 513 pages, one is surprised to find no less than 214 pages devoted to plant groups. However, economic significance has frequently determined the selection of the forms discussed. With the exception of most of the material treated under "The great groups of plants" (pp. 156–370), the text has a decided flavor of elementary agriculture and might well serve as a text in elementary agricultural botany, though such an important topic as seed testing and selecting is conspicuous by the absence of any special treatment. The numerous footnotes and references to literature should prove both useful and stimulating, at least to instructors. The introduction of

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[3] BERGEN, J. Y., and CALDWELL, O. W., Practical botany. pp. v+545. *figs. 381.* Boston: Ginn & Co., 1911.